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EXAMINER	
SRIRAMAN, NIKHIL	

ART UNIT	PAPER NUMBER
3664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,587	PIETRZYK, ANDRZEJ	
	Examiner	Art Unit	
	NIKHIL SRIRAMAN	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) *7* is/are allowed.

6)☒ Claim(s) *1-6 and 8-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a non-final Office Action on the merits in response to communications filed by Applicant on October 2, 2009. Claims 1-10 are currently pending and are addressed below.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 14, 2009 has been entered.

Response to Arguments

2. Applicant's arguments filed have been fully considered are in-part found persuasive and in-part found unpersuasive. Applicant's arguments with resepect to claim 7 are found persuasive and accordingly this claim is indicated below as allowable.

With respect to the amendments of claim 1, Applicant states on Page 5 of the remarks that "This defines over Kokaji and Shen, since neither of these references disclose planar casing walls wherein the interlocks lock the entire planer casing wall of one single solid planar to the entire planar casing wall of another single solid clement."

Examiner agrees that Kokaji does not disclose system where "said interlocks adapted to lock the entire planar casing wall of one said single solid element to the entire planar casing wall of another said single solid element" as recited in claims.

Applicant goes on to state in the first full paragraph of Page 6 of the remarks that "Regarding Shen, it also does not disclose planar casing walls that lock to one another as in the claim. Shen's elements are spherical, and the walls of the elements are thus curved."

Examiner respectfully disagrees. Figs. 1-3 of Shen show elements that are rectangular cuboids. All the surfaces of these elements are planar and the interlocks are adapted to lock the entire planar casing wall of one element to that of another, shown perhaps best in Fig. 2.

Applicant goes on to state in the last paragraph of Page 6:

> Moreover, Claim 1 has been amended to define that each of the planar casing walls that make up an element has variable magnetic polarisation. This overcomes Kokaji, because Kokaji's fractum (see page 442, col. 2) only has one piece with variable magnetic polarization -- and that is the middle piece.

Examiner finds this argument persuasive. However, a new reference has been introduced below with respect to this limitation. Accordingly, claim 1 remains rejected as being obvious as recited below.

Allowable Subject Matter

3. Claim 7 is allowed over the prior art of record.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 9 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding **claim 9**, line 3 recites “wherein the sets of those data”. It is unclear whether "those data" constitutes "assigned sets of co-ordinates", “running numbers" or both. In either event, the term "those data" is indefinite as currently drafted. Further, Examiner notes that this claim only specifies where the data is “transferred to” but not from where the data originated or upon what conditions it is transferred – differentiating the scope of this claim from that of limitation (b) in claim 7.

Regarding **claim 10**, line 2 recites “the actual structure of the object may be dissipated to the initial state”. This marks the introduction of the terms “actual structure", "the object" and "the initial state", despite the indication to the contrary by the antecedent basis. Therefore, it is unclear if these terms were intended to represent limitations previously introduced in either this claim or claim 1 upon which this claim depends. Alternatively, Applicant my have intended this be the introduction of these terms, in which case the claim possess improper antecedent basis. In either event, the claim is indefinite as currently drafted.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Self-Assembling Machine, Applicant Admitted Prior Art, Kokaji et al., in view of Shen et al. (6,636,781 B1), and further in view of Michael (6,157,872).

Regarding **claim 1**, Kokaji et al. discloses **a system of two-dimensional multipurpose elements** (Page 441, Col. 2) **comprising:**

a) a plurality of single solid elements which can move, connect one to one another, and disconnect one from one another, said single solid elements containing programmable integrated circuits and interlocks, (Page 441, Col. 2, note Examiner construes the microprocessor in Koji to include an integrated circuit and the interlocking design to constitute "**interlocks**")

b) each said single solid element of the system having a plurality of casing walls, some planar casing walls with variable magnetic polarization (Page 442, Col. 2)

c) each said single solid element having a voltage source (Page 443, Col. 2), and

d) each said single solid element containing programmed instructions (Page 443, Col. 2).

Kokaji et al. fails to disclose, but Shen et al. does disclose multi-purpose elements that are **three-dimensional** (Figs. 2-3) **with a voltage source inside** each element (Fig. 4, item 205) in order to establish autonomous robots for multi-purpose applications (Shen et al, Col. 3, lines 20-44).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the two-dimensional elements supplied by external power as disclosed by Kokaji et al. to be in three-dimensions and possess internal voltage supplies as disclosed Shen et al. in order to improve autonomy through independent power and increase multi-purpose applications through three-dimensions (Shen et al, Col. 3, lines 19-44).

Kokaji et al. further fails to disclose, but Shen et al. does disclose **said interlocks adapted to lock the entire planar casing wall of one said single solid element to the entire planar casing wall of another said single solid element** (Shen et al., Figs. 1-3) in order to provide a metamorphic design that can physically connect and reconnect in various ways to the change the robot's shape and size to meet operational demands (Shen et al., Col. 3, lines 19-26).

Therefore, it would have been obvious to one having ordinary skill at the time of invention to modify the casing walls of Kokaji et al. to include be planar and interlock as disclosed Shen et al. in order to provide a metamorphic design that can physically connect and reconnect in various ways to the change the robot's shape and size to meet operational demands (Shen et al., Col. 3, lines 19-26).

Neither Shen nor Kokaji disclose, but Michael does disclose every planar casing wall having variable magnetic polarization in order to allow a means for convenient transport of the modules (Col. 12, line 45 - Col. 13, line 56, at least).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to combine the modules as disclosed by Shen and Kokaji with the modular where each casing walls has variable magnetic polarization as disclosed by Michael in order to allow a means for convenient transport of the modules (Michael, Col. 12, lines 52-58).

Regarding **claim 2**, Kokaji et al. further discloses wherein **the planar casing walls connected in each said single solid element are connected to each other so that their reciprocal position can be changed** (Page 443, Col. 1).

Regarding **claim 3**, Kokaji et al. fails to disclose, but Shen et al. further discloses **wherein the planar casing walls contained in each said single solid element are connected to each other by an actuator which is connected to the programmable integrated circuit** (Fig. 4, item 220; Col. 5, lines 33-37)**.** Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the system as disclosed by Kokaji et al. to include the actuator connected to the circuit as disclosed by Shen et al. so that a means of secure connection could be controlled.

Shen et al. does not explicitly disclose the actuator is an **electroplastic actuator**, however, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the actuator Shen et al. discloses, since Applicant has not disclosed that an electroplastic actuator solves any stated problem or is for any

particular purposes and it appears that the invention would perform equally well with any actuator.

Regarding **claim 4**, Kokaji et al. further discloses **wherein the voltage source is a renewable source** (Page 443, Col. 2).

Regarding **claim 9**, Kokaji et al. further discloses a system capable of being **that to running numbers are assigned sets of co-ordinates of the walls of single elements of the system, whereas the sets of those data are transferred to the program in the integrated circuit of each single element of the system** (Page 443, Col. 2; Note Examiner construes this limitation to constitute intended use that is met by the cited reference as result of the capability of the reference's microprocessor to transfer data).

Regarding **claim 10**, Kokaji et al. further **discloses wherein the actual structure of the object may be dissipated to the initial state of single elements of the system through deactivation of all casing walls of single system elements and disconnection of all interlocks in consequence of having transmitted appropriate information to the integrated circuit** (Page 443, Col. 2; Note Examiner construes this limitation to constitute intended use that is met by the cited reference as result of the capability of reference's microprocessor to depolarize the reference's fractum, which would return the system to an initial state).

8. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kokaji et al. in view of Shen et al. (6,636,781 B1) and Michael (6,157,872) as applied to claim 4 above, and further in view of Murata et al. (5,452,199).

Regarding **claim 5**, Neither Kokaji et al. nor Shen et al. disclose, but Murata etal. does disclose **the renewable voltage source is renewable due to solar batteries** for easily supplying the module with power (Col. 4, lines 50-55).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the power source of the module system as disclosed by Kokaji et al. and Shen et al. to include a solar power as disclosed by Murata et al. as an easy way to supply the module with power.

Regarding **claim 6**, while Murata et al. does not explicitly disclose **wherein light provided to the solar batteries is carried in light pipes**, it is notoriously well known in the art that some path for light is needed to supply a solar battery with light, and so it is would have been obvious to one having ordinary skill in the art at the time of invention to modify the system as disclosed by Kokaji et al., Shen et al. and Murata et al. to employ a pathway for light in order to provide the solar batteries with light.

Regarding **claim 8**, this limitation is rejected under the same rational as cited above for claim 6, **wherein the light pipes (2) carry to the integrated circuit (1) both information on the object (10) and program instructions (12)** (Note examiner construes the purpose of the light pipes to not structurally differentiate this feature and therefore not further limit the claim).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIKHIL SRIRAMAN whose telephone number is

(571)270-5797. The examiner can normally be reached on Monday through Friday, 7:30am-5:00pm, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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